

REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 1 - 27 are pending in the application. All claims stand rejected.

By the present amendment, claim 1 has been amended to correct an inadvertent error not related to the patentability of the claim. Further, new claims 28 through 33 have been added to the application.

Support for new claims 28-33 in the original specification can be found as follows:

Claim 28 - see page 4, lines 32-33;

Claim 29 - see page 5, lines 30-33;

Claim 30 - see page 4, line 32 to page 5, line 1;

Claim 31 - see page 4, lines 32-33 and page 6, lines 13-20;

Claim 32 - see page 5, last line to page 6, line 12; and

Claim 33 - see page 6, lines 9-12.

In the office action mailed April 19, 2006, claims 1 - 14 were rejected under 35 U.S.C. 112, second paragraph; claims 15 - 27 are rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 6,042,898 to Burns et al.; and claims 1 - 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Burns in view of JP 6219810 or JP 2003027209.

The foregoing rejections are traversed by the instant response.

The rejection under 35 U.S.C. 112, second paragraph, is now moot in view of the amendment to claim 1.

With regard to the rejection of claims 15 - 27 on obviousness grounds over Burns et al., the rejection is not well founded.

Applicants have found that cleaning of the diffusion heat treatment environment plays a significant role in coating ductility and the coating's final quality acceptability. As noted in paragraph 0015 of the specification, previous practice within the coating industry to correct a contaminated furnace has been to ensure the furnace is adequately free from vacuum leaks and perform a vacuum burn out heat treat cycle a few hundred degrees higher than the highest temperature production heat treat cycle previously used within the furnace. Applicants have found that this still leads to the production of less than desirable coatings. Applicants have found that improved coatings can be obtained begins with cleaning a furnace to be used in the diffusion heat treatment using a heat treat cycle with a gas being injected at the center of the work piece location area. It is this aspect of the claimed invention which is neither taught nor suggested in Burns et al.

Claim 15 is allowable because Burns et al. does not teach or suggest the step of "diffusion heat treating said at least one workpiece in gas atmosphere within a furnace with said gas being injected at a workpiece center location." Burns et al. does not teach either a diffusion heat treating step or injecting the gas at the workpiece center location.

Claims 16 - 23 are allowable for the same reasons as claim 15 as well as on their own accord. For example, Burns et al. does not teach the diffusion heat treatment temperature of claim 16. It is entirely silent on the subject. Still further, Burns et al. does not teach or suggest the gas flow rate of claim 17; the partial pressure of claim 18; the gas flow rate of claim 19; the step of injecting an inert gas into said workpiece center location of claim 21; the step of injecting argon into said workpiece center location of claim 22; and the step of injecting a reducing gas into said workpiece center location of claim 23.

Claim 24 is allowable because Burns et al. does not teach or suggest a means for injecting a gas into an interior of said furnace chamber at a workpiece center location.

Claims 25 - 27 are allowable for the same reasons as claim 24 as well as on their own accord. For example, claim 25 is allowable because Burns et al. does not teach or suggest means for injecting said gas at a flow rate sufficient to carry any contaminants from said workpiece center location toward an exit.

With respect to the rejection of claims 1 - 14 on obviousness grounds, the foregoing comments about Burns et al. deficiencies are equally applicable here. The second references applied by the Examiner do not cure these deficiencies. Japanese patent document 62139810 relates to a method and apparatus for cleaning inside of a tempering furnace. It does not teach or suggest any cleaning method comprising injecting a gas at a workpiece center location. It also

does not teach or suggest a diffusion heat treatment of a workpiece where gas is being injected at the workpiece center location.

Japanese patent document 2003027209 relates to a surface hardening treatment method, i.e. carbonization, of the inner holes of steel products. With respect to cleaning, the English abstract only says that the gas transport pipe and fixing appliance are cleaned and dried and then installed in the prescribed positions in the heating space. Thus, this patent document also fails to teach or suggest a cleaning method comprising injecting a gas at a workpiece center location and applying heat and diffusion heat treating the at least one workpiece in a gas atmosphere with the gas being injected at the workpiece center location.

Since none of the references teach or suggest the claimed cleaning and diffusion heat treating steps, the subject matter of claim 1 is neither taught nor suggested by the proposed combination of references. Therefore, claim 1 is allowable.

Claims 2 - 13 are allowable for the same reasons as claim 1 and further on their own accord. For example, none of the cited and applied references teach or suggest the flow rate of claim 2; the partial pressure of claim 3; the gas flow rate of claims 4 and 11; the diffusion heat treatment temperature range of claim 8; and/or the injecting steps of claims 9 and 10.

New claims 28 through 33 are allowable because none of the cited and applied references teach or suggest the method steps and/or system features set forth therein.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he is hereby invited to contact Applicants' attorney at the telephone number listed below.

The Director is hereby authorized to charge the extra claim fee of \$250.00 to Deposit Account No. 21-0279. Should the Director determine that an additional fee is due, he is hereby authorized to charge said fee to said Deposit Account.

Respectfully submitted,

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I, Karen M. Gill, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on November 1, 2006.


